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SYSTEM AND METHOD FOR FACILITATING COLLABORATION IN CONNECTION WITH GENERATING DOCUMENTS AMONG A PLURALITY OF OPERATORS USING NETWORKED COMPUTER SYSTEMS

FIELD OF THE INVENTION

The invention relates generally to the field of digital computer systems and more particularly to systems and method for facilitating collaboration among a number of persons who may be, for example, working on a common project.

BACKGROUND OF THE INVENTION

In modern "enterprise" digital data processing systems for use in, for example, an office environment in a company, a number of personal computers, workstations, and other various network resources such as mass storage subsystems, network printers and interfaces to the public telephony system, are typically interconnected in a computer network. The personal computers and workstations are used by individual operators to perform processing in connection with data and programs that may be stored in the network mass storage subsystems. In such an arrangement, the personal computers/workstations, operating as clients, download the information, including data and programs, from the network mass storage subsystems for processing. In addition, the personal computers or workstations will enable processed data to be uploaded to the network mass storage subsystems for storage, to a network printer for printing, to the telephony interface for transmission over the public telephony system, or the like. In such an arrangement, the network mass storage subsystems, network printers and telephony interfaces operate as shared resources, since they are available to service requests from all of the clients in the network. By organizing the network in such a manner, the servers are readily available for use by all of the personal computers/workstations in the network. Networks may be spread over a fairly wide area, and may interconnect personal computers, workstations and other devices among a number of companies and individuals.

Enterprise systems as described above operate well when operators are working individually. However a number of problems arise when operators wish to collaborate in working on a common project.

SUMMARY OF THE INVENTION

The invention provides anew and improved system and method for facilitating collaboration among a number of operators in generating documents for a project.

In brief summary, the invention provides a system for facilitating collaboration among a plurality of users in connection with generation of a document includes a document information store and one or more user modules. The document information store stores document information relating to documents being generated, the document information including both document structure information and document content information, the document structure information describing document structural elements for each one document and document content information comprising document content elements associated with respective document structural elements. Each user module includes a whiteboard display module, a document update module and an interface module. The whiteboard display module is

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configured to display a whiteboard to a user, the whiteboard selectively displaying document structure defined by the document structural elements for a document and document content information therefor. The document update module is configured to enable the user to selectively update the document structure and document content information therefor as displayed by the whiteboard display module. The interface module is configured to selectively enable the retrieval of document information for a document and document content information as requested by said operator for display by the whiteboard display module and update of document information as stored in the document information store to be updated in response to updates received by said document update module. Since the system allows a number of users to operate the respective user modules, those users can cooperate to generate the respective documents and content therefor.

BRIEF DESCRIPTION OF THE DRAWINGS

This invention is pointed out with particularity in the appended claims. The above and further advantages of this invention may be better understood by referring to the following description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a functional block diagram of a digital computer network including a collaboration facilitation system, constructed in accordance with the invention;

FIG. 2 schematically depicts components of a project on which a plurality of operators can collaborate using the collaboration facilitation system;

FIG. 3 depicts a functional block diagram of the collaboration facilitation system; and

FIGS. 4 and 5 depicts data structures of project components depicted on FIG. 2, useful in understanding the operation of the collaboration facilitation system depicted in FIG. 3.

DETAILED DESCRIPTION OF AN ILLUSTRATIVE EMBODIMENT

FIG. 1 is a schematic diagram of a computer network including a system for facilitating collaboration among a number of operators, constructed in accordance with the invention. With reference to FIG. 1, computer network 10 includes a plurality of computers 11(1) through 11(n) (generally identified by reference numeral 11(n)) and 12 which are interconnected by a communication link 13. As is conventional, at least some of the computers 11(n) are in the form of personal computers or computer workstations, each of which includes a system unit, a video display unit and operator input devices such as a keyboard and mouse. The computer 12 also includes a system unit, and may also include a video display unit and operator input devices. The computers 11(n) and 12 are of the conventional stored-program computer architecture. A system unit generally includes processing, memory, mass storage devices such as disk and/or tape storage elements and other elements (not separately shown), including network interface devices 14(n), 15 for interfacing the respective computer to the communication link 13. A video display unit permits the computer to display processed data and processing status to the operator, and an operator input device enable the operator to input data and control processing by the computer. The computers 11(n) and 12 transfer information, in the form of messages, through their respective network interface devices 14(n), 15 among each other over the communication link 13.

In one embodiment, the network 10 is organized in a "client-server" configuration, in which at least one